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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/723,857
Filing Date: November 26, 2003
Appellant(s): SALLA ET AL.

John Rariden
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 3 July 2008 appealing from the Office action mailed 5 February 2008.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

No amendment after final has been filed.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

Huesman et al. Preliminary Studies of Cardiac Motion in Positron Emission Tomography. Report LBNL-41433, Lawrence Berkeley National Laboratory. 29 March 2001.

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Double Patenting

Claims 1-40 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-32 of copending Application No. 10/723,894 in view of Huesman et al. (Preliminary studies of cardiac motion in positron emission tomography. *Report LBNL-41433, Lawrence Berkeley National Laboratory*. March 29, 2001.). The instant application claims

methods and systems for combined retrospective and prospective gating. The conflicting application claims methods and systems for retrospective gating only. Huesman (2001) teaches the advantages of combined gating (Abstract). It would be obvious to one of reasonable skill in the art at the time of invention to modify the co-pending invention to further include prospective gating means and methods, in view of the teachings of Huesman (2001).

This is a provisional obviousness-type double patenting rejection.

Claim Rejections - 35 USC § 102

Claims 1-40 are rejected under 35 U.S.C. 102(b) as being anticipated by Huesman et al (Preliminary studies of cardiac motion in positron emission tomography. *Report LBNL-41433, Lawrence Berkeley National Laboratory*. March 29, 2001.), hereinafter Huesman (2001).

Regarding claims 1-4, 13-16 and 21-40, Huesman (2001) discloses an imaging system, which must inherently contain a computer program, and a method for imaging the heart with means and steps for double-gating the image data for both respiratory and cardiac motion correction (Abstract). Huesman (2001) discloses means and steps for acquiring motion data for the lungs and the heart using both an EKG and a pneumatic bellows apparatus (p. 6 ¶ 1), which constitute an electrical sensor with measurement system, and a non-electrical sensor with measurement system, respectively, as claimed in the instant application. Huesman (2001) extracts two prospective gating points, end inspiration and end expiration, and two retrospective gating points, end-diastole and end-systole (Fig. 7). Huesman (2001) also discloses means and steps for acquiring image data of the heart and subsequently processing a portion of the image data to compensate for motion artifacts, including means and steps for reconstructing and displaying the image (Fig. 7, p. 9 ¶ 1).

Regarding claims 5-12 and 17-20, Huesman (2001) additionally discloses initiating the image data acquisition based on a first prospective gating point ("peak inspiration" or "near maximum expiration" p. 4) and also terminates image data acquisition based on a prospective gating point ("7 cardiac gates" p. 4).

Examiner hereby acknowledges Appellant's invocation of paragraph 6 of 35 U.S.C. § 112 in claims 4, 8, 12, 16, 20, 28, 36, and 40. However, all means and steps recited in these claims are anticipated by the Huesman (2001) reference as discussed above.

(10) Response to Argument

i) The broadest reasonable interpretation of "prospective gating" (Appeal Brief p. 47)

Regarding Appellant's allegations that the specification "clearly defines prospective gating," it is imperative to recognize that, when an Applicant wishes to be his or her own lexicographer, the specification must expressly set forth that a term is being redefined in a sufficiently explicit manner as to put one of ordinary skill on clear notice that the term is being used in a way other than that which is commonly accepted in the art (MPEP 2111.02, see also for precedence *Intellicall, Inc. v. Phonometrics, Inc.*, 952 F.2d 1384, 1387-88, 21 USPQ2d 1383, 1386 (Fed. Cir. 1992)). As the present specification lacks any such statement, the Appellant has not, contrary to the assertions presented in the Appeal Brief, sufficiently redefined "prospective gating" such that it can only mean that which is described in exemplary embodiments in the disclosure. Accordingly, it is in fact fair and reasonable for the Office to interpret "prospective gating point" as meaning any point in time used to define a period of interest, wherein the period of interest is identified prior to the initiation of that period, and it is improper for the Appellant to suggest that the Office should only interpret this term to mean that which is described in the pending disclosure.

ii) Initiation and termination of data acquisition based on prospective gating points (Appeal Brief p. 49-50, 55)

In response to Appellant's allegations that the Examiner deemed proposed amendments distinguishable over Huesman and then subsequently rejected those same amendments in view of the reference, it is important to recognize that, while the amendments were sufficient to overcome one interpretation of Huesman, the Examiner is not precluded from interpreting the reference in a different way in order to determine whether the present claims are anticipated or taught by the reference. Accordingly, while Appellant's amendment to specify that initiation and termination of data acquisition was in fact sufficient to overcome the literal disclosure of prospective gating as presented by Huesman, the Examiner found alternative features in the reference, namely the prospective determination of respiratory state triggers, to be a fair and proper anticipation of the presently claimed prospective gating points. That the Examiner applied the same reference in an alternative interpretation has no bearing on the validity of the rejection. To further clarify the grounds of rejection, Huesman determines, *prior to the initiation of data acquisition*, that the imaging will occur during peak inspiration and near maximum inspiration (p. 4, "...MRI data were acquired...for two respiratory states: peak inspiration and near

maximum expiration"). Knowing beforehand that these are the physiological periods for which it is desired to acquire image data reasonably constitutes prospective gating as recited by the present claims. Furthermore, to address the recited termination of image data based on the prospective gating points, Huesman goes on to specify that the data was acquired for exactly 7 cardiac gates (p. 4). By deciding beforehand that the imaging will take place over the course of 7 cardiac gates, the end of the 7th gate constitutes a *prospectively determined* gating point at which data acquisition should terminate. Regarding Appellant's allegation that Huesman does not provide adequate evidence that these timepoints were determined beforehand, Examiner respectfully directs the Board's attention to the fact that Huesman clearly performed the imaging procedure multiple times (p. 4 "[e]ach dataset consisted of…7 cardiac gates"), and by the basic principles of scientific experimentation, any one of ordinary skill in the art would recognize that the parameters of the imaging procedure would have to be determined prior to initiation of imaging, as maintaining consistent procedure when performing an experiment is the only way to reliably draw conclusions from the outcome with reasonable certainty that such outcomes were not affected by external variability. It is highly unlikely, if not statistically impossible, that Huesman could have terminated the multiple imaging iterations at arbitrary points in time, and realized retrospectively that he had, by sheer coincidence, acquired data for exactly 7 cardiac gates for each iteration.

iii) The reference provides prospective gating for a different purpose than the Appellant (Appeal Brief p. 51)

Appellant points to the fact that, because the method of operation disclosed by Huesman is provided for a different purpose than that which is presently disclosed, the reference is purportedly "clearly and fundamentally in contrast with" the method set forth in the present claims. Examiner maintains that anticipation of an invention must be determined independently of the purpose for which the reference provides such method. Stated alternatively, "[t]he question of whether a reference is analogous art is not relevant to whether that reference anticipates" (MPEP 2131.05). As such, Appellant's attack of Huesman for not gating for the same reasons disclosed in the present specification is ineffective to disprove that the reference anticipates the claimed invention.

iv) The broadest reasonable interpretation of "gating" (Appeal Brief p. 53)

Similar to the discussion of "prospective gating" presented above, Appellant asserts that, because Huesman does not "gate" in the same manner that is described in the present specification, Huesman cannot anticipate or teach the recited gating. More specifically, Appellant alleges that since Huesman is capable of synthesizing an uninterrupted set of image data, i.e. that if one were to sum the multiple gated data sets of Huesman, one could obtain a continuous stream of data over a period of time, this teaches away from the recited gating, which purportedly requires the gated sets to be interrupted selections over a period of time. Appellant has failed to sufficiently redefine "gating" in the disclosure in such a way to require a skilled artisan to interpret this term as meaning anything other than what is ordinarily accepted in the art, which is "the output of a signal when specific input conditions are met". Moreover, the present claims lack any recitation that would reasonably narrow the scope of the claimed invention to exclude the acquisition of gated data sets that are capable of being summed to provide a continuous and uninterrupted stream of data. As such, it appears that Appellant is merely attempting to force the Office to improperly read limitations from the specification into the claims. For at least these reasons, Examiner maintains that the gated data sets of Huesman do in fact meet the presently recited gated data sets.

v) Using both retrospective and prospective gating points (Appeal Brief p. 58)

Appellant's allegations that Examiner has improperly cited Huesman's cardiac gates to constitute both the claimed retrospective and prospective appear to be based on an overly reductionist interpretation of the grounds of rejection presented in the Final Office Action. While Huesman does use cardiac variables in both the prospective and retrospective gating of the MR imaging data, Huesman does not use the same *specific* cardiac variables for both points. That both gating points are derived from the same physiological phenomenon, i.e. the cardiac cycle, does not prove that they are actually the same gating point or variable. As was clearly stated in the Final Office Action, contrary to the Appellant's allegations, Huesman discloses that image data corresponding to end-diastole and end-systole are extracted after the acquisition of the image data terminates (i.e., "retrospectively), and as such these points are reasonably found to constitute retrospective gating points. End-diastole and end-systole, points that occur within every cardiac cycle, are clearly distinct from the 7 cardiac gates, i.e. 7 full and continuous cardiac cycles, which Huesman prospectively determined to be the appropriate length of time for which imaging should occur as discussed in (ii).

vi) Means plus function claims (Appeal Brief p. 61)

Regarding Appellant's allegations that the means plus function components of claims 24, 28 and 32 are not disclosed by Huesman as cited by the Examiner, the EKG of Huesman (p. 6 ¶ 1) constitutes means for acquiring a set of motion data from electrical sensors, the MR imaging and processing systems disclosed by Huesman (p. 4, GE Signa 1.5T scanner, p. 5 CTI/Siemens EXAT EXACT HR software and hardware, p. 6 LabVIEW software embodied on a Macintosh workstation) constitute means for processing the set of motion data and acquiring and reconstructing image data based upon prospective and retrospective gating points. Note the descriptions of means for processing data, acquiring data, reconstructing data, and processing reconstructed data present in the specification are very broad (as pointed out in the Section 5 of the Brief).

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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TC 3700 TQAS